

XXIII. *Monograph of the Genus Cryptocerus, belonging to the Group Cryptoceridæ—Family Myrmicidæ—Division Hymenoptera Heterogyna.* By F. SMITH, Esq.

[Read 7th March, 1853.]

THERE is no genus with which we are acquainted amongst the *Formicidæ* which exhibits such eccentricities of form as are met with in *Cryptocerus*; indeed, independent of variation in general habit, the differences of the form of parts is so great in some species, that at first sight they would appear to belong to distinct genera: a careful study of a number of individuals soon shows us that these apparently broad distinctions are but modifications of one normal type of structure. Taking the type of the genus *C. atratus*, and attentively studying it, we find in the different individuals which follow, some differing in the addition to or diminution of the number of spines which usually arm the head and thorax; others having the shield of the head, or lateral produced margins, terminating more or less suddenly before reaching the posterior angles of the head; in one instance only do we find the margin continued entirely round, forming the exact model of a dish. This expansion appears to be at the expense of a diminution of other appendages, the thorax as well as the nodes of the abdomen are destitute of spines, and all other parts are of the simplest construction.

I have thought it desirable to give figures of the sexes of all the species of which I could obtain specimens for that purpose. An additional interest will arise from the discovery of the males of two species; for this valuable information we are indebted to the industry and the acuteness of observation of Mr. H. W. Bates, to whom Entomology is under such lasting obligations for the elucidation of so many points of obscurity, not the least interesting of which is the discovery of the males of *Cryptocerus*. From Mr. Bates's notes I copied the following observation: "The three sexes were taken in company in a decaying tree, in which their burrows were formed;"\* judging from the number of specimens sent—two males and about a dozen of each of the other sexes—we may reasonably conclude that their societies are not very numerous. In their habits we have been informed by Lund that the species are comparatively solitary, lying in wait and springing upon their prey in the manner of a hunting spider, to which indeed they bear a striking resemblance.

\* This note applies to the discovery of the sexes of *C. clypeatus*.

The number of previously described species appears to be twenty; to this I now add fifteen, making the total thirty-five. From these I propose to remove the species of the Old World, four in number, and form a new genus for their reception; and a second new genus I create for two other species, differing very materially from all others in having the abdomen pedunculated and rounded in the females, the neuration of their wings being also quite distinct from *Cryptocerus*. When a knowledge of all the sexes shall have been obtained, it will in all probability be necessary to make further subdivisions. Indeed, I retain in the genus *Cryptocerus* a species from Adelaide with some reluctance; but having only one specimen, I leave it there for future investigation, being unwilling to destroy it by dissecting. In its antennæ I cannot detect more than ten joints, all other neuters having eleven; the basal joint of the flagellum is frequently hidden in a cavity at the apex of the scape, but such does not appear to be the case in the species from Adelaide.

Having the means of describing for the first time the male and female of a closely allied genus, the *Daceton* of Perty, I have given both descriptions and figures of the sexes; this genus, in the neuration of the wings, will be found very nearly to agree with the genus *Cryptocerus*.

I have also added to my present memoir a description of a new and allied genus from New Zealand, very remarkable for having only five joints in the antennæ of the workers.

I have much pleasure in recording still further obligations to Mr. Bates, who discovered the male and female of the genus *Daceton*; both sexes are in the collection of the British Museum. I am greatly indebted to my friend Mr. Westwood for the permission to describe four new species from his collection; nine new species are described from specimens in my own cabinet, the possession of which in the first instance induced me to undertake a monograph of the genus *Cryptocerus*.

### Group CRYPTO CERIDÆ.

#### Genus 1. CRYPTO CERUS.

- Formica*, pt. Linn. Syst. Nat. i. 965, 16; Fabr. pt. Syst. Ent. 395; Spec. Ins. i. 310; Ent. Syst. ii. 369, 54; Oliv. Encl. Méth. vi. 500; Latr. Hist. Nat. Fourm. 272.
- Cryptocerus*, Latr. Hist. Nat. Crust. Ins. xiii. 260; Gen. Crust. Ins. 132; Fabr. Syst. Piez. 418; Klug, Entom. Monog. 200; St. Farg. Hym. i. 170; Guérin, Icon. R. Anim. 424.

Sexes three; female and worker furnished with a sting, sides of the head expanded, partly concealing the eyes, having on each side beneath the produced margin a longitudinal channel before the eyes; antennæ stout, clavate, reposing in the lateral channel; scape of the antennæ grooved beneath for the reception of the basal joints of the flagellum; labrum transverse, its anterior margin deeply notched; labial palpi 3-jointed, each of about equal length; maxillary palpi 5-jointed, the first joint short, subglobose, the second about the length of the two following, the apical joint the same length as the third and fourth; maxillary apical lobe somewhat rounded, slightly produced and pointed at the apex; superior wings having one marginal and two sub-marginal cells; and one small discoidal cell, sub-quadrate and narrowed towards the submarginal. Abdomen elongate in the females; ovate, or globose in the workers.

Males elongate, slender; the head not produced at the sides; ocelli prominent (smaller in the females and wanting in the workers); wings ample, neuration as in the females; legs elongate; abdomen small, attached to the thorax by two basal nodes.

Obs.—Latrielle in his *Gen. Crust. et Ins.* iv. p. 132, says the labial palpi consist of four joints. I have examined both labial and maxillary palpi of females and workers of *C. atratus*, under a powerful microscope, and can only detect three labial and five maxillary joints in the palpi. Fabricius, *Syst. Piez.*, p. 419, gives labial palpi 4-jointed, maxillary palpi 6-jointed.

1. *Cryptocerus atratus*. (Pl. XIX. figs. 1, 2.)

*Formica atratus*, Linn. *Syst. Nat.* i. 965, 16; *Fab. Syst. Ent.* 395, 24; *Spec. Ins.* i. 493, 33; *Mantis. Ins.* i. 310, 40; *Ent. Syst.* ii. 363, 54; *Oliv. Encycl. Méth.* vi. 609; *Latr. Hist. Nat. Fourm.* 272, tab. xii. fig. 74 A.

*Formica quadridens*, De Geer, *Ins.* iii. 609, 7, tab. 31, fig. 17—20.

*Cryptocerus marginatus*, *Fabr. Syst. Piez.* 419, 2, ♀.

*atratus*, *Latr. Hist. Nat.* xiii. 260, tab. cii. fig. 1; *Fabr. Syst. Piez.* 418, 1; *Klug, Entom. Monog.* 200, 1; *St. Farg. Hym.* i. 170, 1; *Guérin, Icon. R. Anim.* 424, tab. 69, fig. 3; *Spin. Mem. Acad. Torino. (Ser. Sec.) Tom. xii. l. 63.*

Hab. Brazil; Cayenne; Surinam.

2. *Cryptocerus dubitatus*, new sp. (Pl. XX. fig. 1.)

*Male*.—Length 6 lines. Head and thorax black, rugose-punctate; the stemmata placed forwards on the vertex; antennæ ferruginous. Thorax, the collar produced at the anterior angles into a short acute tooth; the metathorax is also produced at the posterior angles into a sharp spine; the wings ferruginous. Legs ferruginous, the coxæ and trochanters black. Abdomen, the two nodes black, the rest ferruginous.

This insect was in my possession some time before Mr. Bates discovered the male of *C. clypeatus*. I had placed it with "*C. atratus*" as being probably its male, but I had no other evidence of its being a male *Cryptocerus* than the circumstance of its agreeing in the neuration of the wings with that genus; from its size I still suspect it to be the male of "*atratus*." I have seen no second example.

Hab. Brazil.

3. *Cryptocerus Æthiops*, new sp. (Pl. XX. fig. 9.)

*Neuter*.—Length  $3\frac{1}{2}$  lines. Black, opaque, lateral margins of the head dilated, and slightly raised, within which is an indistinct longitudinal ferruginous stripe; at the posterior angles of the head are two acute spines, and in front of each eye, beneath the dilated margin, is a short tooth visible from above; at the vertex of the head are also two minute spines. At the anterior angles of the thorax is a short spine or tooth, behind which is a stout elongate spine, bidentate at the apex; the posterior angles are also armed with acute spines, which curve outwardly; the nodes of the abdomen unarmed; abdomen globose, deeply emarginate in front, the emargination receiving the posterior node. The head, thorax and nodes of the abdomen have distant large shallow punctures; abdomen very delicately shagreened, polished on the disc, and having a few scattered punctures.

Hab. Brazil.

In the Collection of the British Museum, and of my own.

4. *Cryptocerus oculatus*.

*Cryptocerus oculatus*, Spin. Mem. Acad. Torino, ser. 2m. tom. xii. I. 65.

Hab. Brazil.

5. *Cryptocerus clypeatus*. (Pl. XXI. fig. 1, 2, 5 & 6.)

*Cryptocerus clypeatus*, Fabr. Syst. Piez. 420, 3, (worker);  
Perty, Delec.; Klug, Entom. Monog. 207, 6; Guérin,  
Icon. R. Anim. 426, 6.

*Male*.—Length  $3\frac{1}{2}$  lines. Head and thorax black, rugose, and having on the disc of the thorax a thinly scattered fulvous pubescence; antennæ and legs pale ferruginous; wings sub-hyaline, nervures pale testaceous, stigma ferruginous; a dark cloud commences just within the first sub-marginal cell, occupies the marginal one, and passes along the anterior margin to the apex of the wing. Abdomen ferrugineo-testaceous, highly polished, the first node black, the second stained at the sides.

*Female*.—Length 6 lines. Entirely of a reddish-yellow, smooth and shining; the flagellum of the antennæ fuscous; the lateral margins of the head raised, at the posterior angles a short acute spine, another acute spine immediately behind each posterior stemma; the anterior angles of the thorax acute; the lateral angles of the metathorax produced into stout obtuse spines, disc of the thorax somewhat flattened. Wings sub-hyaline, the nervures at the base of the wings pale, darker towards their apex; a dark cloud occupies the marginal cell and passes off along the anterior margin of the wing to the apex; the nervures of the wings have a narrow cloud running their entire length. Abdomen elongate, flattened above, having at the basal and apical angles an ovate yellow macula, surrounded by a fuscous ring.

Hab. Brazil (Santarem). H. W. Bates, Esq.

In the British Museum, and other Collections.

6. *Cryptocerus membranaceus*.

Reddish-brown, punctured; head and thorax spinose, the abdomen having a pale membranaceous margin.

*Cryptocerus membranaceus*, Klug, Ent. Monog.; Guérin, Icon.  
R. Anim. 426. (Worker.)

Length 3 lines.

Hab. Brazil.

7. *Cryptocerus quadriguttatus*.

Reddish-brown: abdomen ovate, and having four large yellow spots, and between the pairs a transverse black band.

*Cryptocerus 4-guttatus*, Guér. Icon. R. Anim. 425. (Worker.)

Length  $3\frac{3}{4}$  lines.

Hab. Columbia; Bolivia; Amazons, Brazil.

8. *Cryptocerus elongatus*.

Black, elongate; thorax anteriorly and posteriorly bispinose.

*Cryptocerus elongatus*, Klug, Entom. Monog. ♀; Guérin, Icon. R. Anim. 426.

Length 5 lines.

Hab. Brazil (Para).

9. *Cryptocerus pallens*.

Pallid, depressed; head and thorax angulate; petiole very short, sub-spinose.

*Cryptocerus pallens*, Klug, Ent. Monog.; Guérin, Icon. R. Anim.

Length  $1\frac{1}{2}$  line.

Hab. Brazil.

10. *Cryptocerus argentatus*, new sp. (Pl. XIX. fig. 7.)

*Female*.—Length 5 lines. Shining black: head finely and distantly punctured, rounded in front, and convex above; the stemmata placed in a triangle, wide apart; the lateral raised margins of the head narrow, commencing in front opposite the base of the mandibles, and gradually narrowing backwards to the posterior angles of the head, which are acute; prothorax acute at the anterior lateral angles, the metathorax on each side at the posterior angles forming a long spine curving slightly upwards; the first node of the abdomen produced on each side into a sharp stout spine curving upwards; the second node also has anteriorly on each side a stout acute spine curving upwards; the abdomen very smooth and shining, and having on each side, nearly touching the basal angle, an ovate yellow macula, which is sprinkled over with silvery scales or hairs; the apical segments are covered with silvery hairs; the wings fusco-hyaline, the thorax minutely and distantly punctured, the legs are sprinkled with short silvery hairs above.

Hab. Columbia.

In my own Collection.

11. *Cryptocerus D'Orbignyanus*, Westw. MSS., new sp.  
(Pl. XIX. fig. 5.)

*Female*.—Length 4 lines. Black: head and thorax covered with shallow punctures, the abdomen delicately and very closely punctured, the entire insect sprinkled with minute golden hairs; the produced lateral margins of the head rufo-testaceous an-

teriorly, the mandibles and antennæ of the same colour. Thorax, the anterior and posterior angles acute, forming short spines; wings slightly fuscous, stigma fuscous, nervures pale testaceous; legs ferruginous. The first node of the abdomen produced in the middle laterally into a short acute spine, the second node has on each side anteriorly a recurved spine. Abdomen elongate, narrowing slightly towards the base.

Hab. South America.

Of this species I have only seen the single specimen kindly lent to me by Mr. Westwood for description.

12. *Cryptocerus quadrimaculatus*. (Pl. XIX. fig. 8.)

Black, elongate; the head convex above, rounded in front, the abdomen having four yellow maculæ.

*Cryptocerus quadrimaculatus*, Klug, Ent. Monog. ♀; Guérin, Icon. R. Anim. 426.

Length  $3\frac{1}{2}$  lines.

Hab. Brazil. In my own Collection.

13. *Cryptocerus depressus*.

Black: the head anteriorly testaceous at the sides, posteriorly bispinose; the petiole spinose.

*Cryptocerus depressus*, Klug, Ent. Monog.; Guérin, Icon. R. Anim. 426.

Length 2 lines.

Hab. Rio Janeiro.

14. *Cryptocerus umbraculatus*.

Rufo-testaceous, margins of the head flavescens, thorax having a spine at the anterior angles; abdomen ovate, yellow, and having two transverse black stripes connected by a central stripe.

*Cryptocerus umbraculatus*, Fabr. Syst. Piez. 420, 4; Klug, Entom. Monog. 210, 8; Guérin, Icon. R. Anim. 426, 8.

Length  $4\frac{1}{2}$  lin.

Hab. South America.

15. *Cryptocerus femoralis*, West. MSS., new sp. (Pl. XX. fig. 3.)

*Neutr.*—Length  $2\frac{3}{4}$  lines. Black: the head, thorax and legs covered with shallow punctures, each containing a minute glittering scale or hair; the lateral margins of the head expanded before

the eyes, the margin testaceous, the hinder angles acute; the antennæ sprinkled with glittering hairs; the sides of the thorax in front testaceous, the anterior portion transverse quadrate, behind which the sides are deeply notched, the notch containing a curved spine; the metathorax transverse, its anterior margin arched, the lateral and posterior margins curved inwards, the posterior angles produced into a sharp spine; the nodes of the abdomen transverse, armed on each side with a sharp spine which is bent backwards; legs four-sided, the section of which is a square. Abdomen somewhat heart-shaped, narrowly margined; longitudinally and finely rugulose, most strongly so at the base.

Hab. Columbia.

This species is in the Collection of J. O. Westwood, Esq., who kindly lent it me for description.

16. *Cryptocercus cordatus*, new sp. (Pl. XXI. fig. 3.)

*Worker*.—Length 3 lines. Black, finely punctured, thinly covered with glittering silvery scales; the head deeply emarginate in front, the sides rounded anteriorly, notched on each side over the eyes; the head truncate posteriorly, the lateral angles slightly obliquely truncate;—the head rufo-testaceous on each side anteriorly. The thorax rounded in front, produced laterally into a flattened margin, the angles of which are acute anteriorly, the sides curved and notched posteriorly, forming a small sharp tooth on each side, between which is a transverse suture; the posterior portion of the thorax is bidentate on each side, the anterior tooth being the largest, and curving slightly backwards; the basal margin of this portion of the thorax notched on each side, forming a blunt tooth in the centre. The two nodes of the abdomen are transverse, the anterior one being the widest; each is produced laterally into teeth or spines, which are bent backwards; the abdomen is heart-shaped, slightly margined at the base, the basal margins laterally testaceous.

Hab. Santarem, Brazil.

Mr. Bates, in a note on this species, observes, "Swarms of this small species, all individuals of the same size, are seen on branches and flowers of *Byrsominæ* and other trees on dry sandy campos."

The single specimen sent is unique in the Collection of the British Museum.

17. *Cryptocercus pusillus*. (Pl. XX. fig. 8.)

Black: head dilated before the eyes on each side, the sides anteriorly testaceous.

*Cryptocerus pusillus*, Klug, Ent. Monog. ; Guérin, Icon. R. Anim. 426.

Length  $2\frac{1}{2}$  lines.

Hab. Brazil ; Demerara.

In the Collection of the British Museum, and of J. O. Westwood, Esq.

18. *Cryptocerus minutus*.

Black : head depressed, marginate, the margin pale testaceous, thorax having anteriorly on each side a bent spine ; abdomen margined at the base, the margin pale testaceous.

Length 2 lines.

Hab. S. America.

*Cryptocerus minutus*, Fabr. Syst. Piez. 425, 5 ; Klug, Entom. Monog. 202, 2 ; Guér. Icon. R. Anim. 426, 2.

19. *Cryptocerus Pinelii*.

Dark brown : head and thorax without spines, petiole and abdomen pale yellow ; the entire insect punctate.

*Cryptocerus Pinelii*, Guérin, Icon. R. Anim. 425.

Length  $3\frac{1}{2}$  lines.

Hab. Moro-Gueimado, Brazil.

20. *Cryptocerus complanatus*.

Opaque black ; posterior angles of the head without spines ; thorax wide in front, narrowing towards the abdomen ; nodes of the abdomen transverse ; spined at the sides ; abdomen ovate.

*Cryptocerus complanatus*, Guér. Icon. R. Anim. 424 (Neuter).

Length  $3\frac{1}{4}$  lines.

Hab. Cayenne.

21. *Cryptocerus Pavonii*.

*Cryptocerus Pavonii*, Latr. Gen. Crust. Ins. 132.

Hab. South America.

22. *Cryptocerus unimaculatus*, new sp. (Pl. XIX. fig. 9.)

*Neuter*.—Length 3 lines. Head and thorax black ; disc of the head rugose, most deeply so on the vertex ; the raised lateral margins ferruginous, terminating opposite the eyes ; scape of the antennæ and the flagellum beneath ferruginous ; the thorax rugose, the anterior angles produced into a stout blunt spine ; the

posterior angles have also a longer stout acute spine, the legs black ; the head and thorax are both sprinkled with short bright golden hairs ; each node of the abdomen has on each side an acute spine. Abdomen ovate, emarginate at the base ; an oblong black stripe runs from the apex to the middle of the abdomen ; beneath black.

Hab. Brazil.

This appears to be a rare species ; I have only seen the single specimen in my own Collection.

23. *Cryptocerus discocephalus*, new sp. (Pl. XX. fig. 2.)

*Neuter*.—Length  $2\frac{1}{2}$  lines. Entirely ferruginous, the entire margin of the head curving upwards, forming the exact model of a dish or bowl, which has a few large scattered punctures within ; the posterior angles of the head produced laterally, and bent slightly upwards ; the thorax without spines, somewhat oblong-quadrate, but narrower posteriorly ; nodes of the abdomen transverse, acute at their outer angles ; abdomen elongate-ovate, deeply emarginate at the base ; legs very short and stout.

Hab. Brazil.

Of this remarkable species I have only seen two specimens, one in the Collection at the British Museum, and one in my own.

24. *Cryptocerus causticus*.

*Formica caustica*, Pohl and Kollar, Braz. Insect. 17. Tab. fig. 12.

*Cryptocerus caustica*, Guér. Icon. R. Anim. 426.

25. *Cryptocerus elegans*, new sp. (Pl. XIX. fig. 3.)

\**Neuter*.—Length  $2\frac{1}{2}$  lines. Head, antennæ and legs rufo-testaceous ; margins of the head broadly expanded at the sides, narrowly so behind, and of a pale testaceous hue ; eyes black ; mandibles rufo-testaceous. Thorax elongate, rounded in front, its lateral angles produced into spines curving backwards ; the metathorax has three teeth on each side ; the shoulders and teeth at the sides of the thorax pale testaceous ; the posterior femora testaceous, and having a minute tooth above ; the first node of the abdomen rounded in front, curving outwardly at the sides to half its length, then abruptly curving inwards on each

\* Mr. H. W. Bates, in a note on this species, observes :—“ This pretty little species was found swimming nimbly over the broad leaves of *Heliconia* in a moist forest. I have not yet detected its male or female, but suppose its nest to be made in the hollow branches of trees like the other species.”

side, forming a narrow footstalk to the broad portion; the second is somewhat square, having on each side anteriorly a broad bent flattened spine. Abdomen heart-shaped, having on each side, at the base, a large ovate pale testaceous macula, and a little beyond the middle on each side a pale transverse stripe: the entire insect is covered with shallow punctures, and sprinkled with very short glittering hairs or scales.

Hab. Columbia; Brazil (Santarem). H. W. Bates, Esq.

In the Collections of the British Museum, and of J. O. Westwood, Esq.

26. *Cryptocerus hæmorrhoidalis*.

Opaque-black: the head without spines, large and nearly square, the lateral margins of the head ferruginous; abdomen ovate, the sides marginate, at the apex a large red spot, divided in the middle by a longitudinal black line.

*Formica hæmorrhoidalis*, Latr. Hist. Nat. Fourm. 276.

*Cryptocerus hæmorrhoidalis*, St. Farg. Hym. I. 172, 3.

Length  $2\frac{1}{2}$  lines.

Hab. St. Domingo.

27. *Cryptocerus Araneolus*, new sp. (Pl. XIX. fig. 4.)

*Neuter*.— $1\frac{1}{2}$  lines. Dull reddish brown: the lateral margins of the head raised and expanded before the eyes; at the eyes the margins are notched, the raised margins ferruginous, the extreme apex of the antennæ pale testaceous. Thorax oblong, gradually narrowing towards the abdomen, divided in the middle by a transverse suture, the lateral margins crenulated. Legs short and stout; the nodes of the abdomen transverse, and furnished on each side with an acute spine. Abdomen ovate, marginate, and emarginate at the base; the whole insect covered with shallow punctures, each of which contains a bright golden hair.

Hab. St. Vincent's.

In the Collection of J. O. Westwood, Esq. and in my own.

28. *Cryptocerus rimosus*.

*Cryptocerus rimosus*, Spin. Mem. Acad. Torino, Tom. xii. I. 65.

Hab. Brazil.

29. *Cryptocerus pubescens*, new sp. (Pl. XX. fig. 4.)

*Female*.—Length 2 lines. Brown-ferruginous: the head laterally in front has a slightly raised margin. Thorax quadrate, the anterior margin waved, the sides curving outwardly, the

posterior margin curving inwards and waved, notched in the middle, the four angles acute. A little before the posterior angles the sides produced into an angular tooth. The metathorax has on each side an acute spine, which as well as the first node of the abdomen is hidden by the projection of the disc; the second node half-circular or half-moon shaped. Abdomen nearly rotundate, a dark stain runs down the centre, acute at the base and gradually widening to the margin of the first segment; the entire insect is covered with erect pale hairs.

Hab. Adelaide, N. S. Wales.

In my own Collection.

#### Genus 2. MERANOPLUS.

Sexes three, male, female and worker, or neuter. *Female*.—Sides of the head not expanded; antennæ inserted before and above the eyes on each side at the base of the clypeus, the basal joint or scape nearly as long as the flagellum; in repose, received into a lateral channel or groove above the eyes in the sides of the head, passing beyond them and nearly reaching the vertex. Wings, the superior pair having one marginal and one complete sub-marginal cell, each being of about equal length; the discoidal cell sub-quadrate. Abdomen somewhat heart-shaped, attached to the thorax by two elongate nodes.

##### 1. *Meranoplus bicolor*. (Pl. XX. fig. 6.)

Head and thorax ferruginous; abdomen black; head without spines; metathorax posteriorly armed with a long acute spine on each side.

*Cryptocerus bicolor*, Guérin, Icon. R. Anim. 425.

Length  $1\frac{3}{4}$  lines.

Hab. Pondicherry.

##### 2. *Meranoplus petiolatus*, new sp. (Pl. XX. fig. 7.)

*Female*.—Length  $3\frac{1}{2}$  lines. Head bright ferruginous; antennæ dark rufo-testaceous; the thorax of the same colour, longitudinally rugose, the lateral margins of the thorax parallel to the base of the wings, from whence the sides are narrowed considerably to the metathorax, which on each side has a short tooth; wings pale, nervures pale ferruginous; legs ferruginous; the nodes of the abdomen sub-quadrate; abdomen ovate, rufo-testaceous, and irregularly stained with black; beneath black, and having a large rufous patch in the middle, which has a black stain in the centre; the entire insect has a thinly scattered erect pale pubescence.

Hab. Brazil.

A rare species apparently. I have only seen the single specimen in my own Collection.

Genus *CATAULACUS*, new gen.

Sexes three, male, female and neuter, or worker. *Female*.—The sides of the head not expanded, the eyes not concealed. Antennæ inserted before the eyes; in repose, received into an oblique groove or channel in the cheek; scape of the antennæ grooved beneath for the reception of the basal portion of the flagellum. Wings having one marginal and one complete sub-marginal cell, the discoidal cells obsolete. Abdomen elongate in the female, ovate in the workers or neuters.

Male not known.

1. *Cataulacus Taprobance*, Westw. MSS., new sp. (Pl. XX. fig. 10.)

*Neuter*.—Length 2 lines. Black: the head and thorax roughly longitudinally rugose, the vertex behind, and a small central portion of the thorax, anteriorly transversely rugose; the antennæ rufo-testaceous, the scape and extreme apex pale; sides of the head and thorax crenulated, the posterior angles of the latter armed with a stout spine; the tibiæ and tarsi rufo-testaceous. The nodes of the abdomen coarsely sculptured; abdomen ovate, finely shagreened, and longitudinally and delicately rugose at the base and sides, the rugosity consisting of a series of raised striæ which do not reach the middle of the abdomen excepting at the sides.

Hab. Ceylon.

This species is unique in the Collection of the Entomological Society, to which it was presented by Mr. G. H. K. Thwaites, who captured it in Ceylon.

2. *Cataulacus Guineensis*, Westw. MSS., new sp. (Pl. XX. fig. 5.)

*Neuter*.—Length  $2\frac{3}{4}$  lines. Black: head and thorax longitudinally rugose-striate, most deep and coarse on the thorax; sides of the head crenulate, the scape ferruginous, apical joint of the flagellum testaceous, the palpi testaceous. Thorax, the anterior portion transverse and inclining downwards towards the head, the sides crenulate, the posterior angles acute; behind the transverse portion the thorax becomes much narrower towards the meta-thorax, from which it is separated by a transverse deep suture;

posterior angles of the metathorax produced into an elongate stout acute spine; the tibiæ and tarsi ferruginous. Abdomen ovate, finely granulate, the nodes deeply and coarsely sculptured; the entire insect is sprinkled with erect pubescence.

Hab. Tropical Western Africa.

Unique in the Collection of J. O. Westwood, Esq., who kindly lent it to me for description.

3. *Cataulacus parallelus*, new sp. (Pl. XIX. fig. 6.)

*Female*.—Length  $3\frac{1}{2}$  lines. Black: the head longitudinally rugose-striate, the vertex emarginate, the emargination transversely rugose-striate; the scape of the antennæ and extreme apex of the flagellum ferruginous. Thorax longitudinally rugose-striate; the metathorax on each side produced into a stout sharp bent spine, beneath which it is transversely sulcate; wings tinged with yellow, their nervures pale testaceous; the tibiæ and tarsi ferruginous. The first node of the abdomen coarsely sculptured transversely, the second longitudinally so. Abdomen oblong-quadrate, finely aciculate at the base, beyond which it is delicately shagreened, and has towards the apex a few short scattered pale setæ.

Hab. Cape of Good Hope.

Apparently a rare species; I have only seen the specimen in my own Collection.

4. *Cataulacus granulatus*.

*Formica granulata*, Latr. Hist. Nat. Fourm. 275, tab. 12, fig. 75.

*Cryptocerus granulatus*, St. Farg. Hymenop. I. 171, 2.

Opaque-black, granulated, the posterior angles of the head armed with a spine, sides of the head not produced, the eyes exposed.

Length  $1\frac{2}{3}$  lines.

Hab. India.

GENUS 3. DACETON.

*Formica*, pt. Latr. Hist. Nat. des Fourm.

*Daceton*, Perty, Delect. An. Art.

Sp. 1. *Daceton armigerum*. (Pl. XXI. figs. 1, 2.)

*Formica armigera*, Latr. Hist. Nat. Fourm. 244, tab. ix. fig. 58  
(neuter).

*Atta? armigera*, Guér. Icon. R. Anim. 221, tab. 69, fig. 2.

*Daceton armigerum*, Perty, Delect. An. Art. Bras. tab.

*Female*.—Pale rufo-testaceous, head heart-shaped, ocelli placed in a triangle on the vertex; thorax not quite so wide as the head,

the anterior angles produced into short acute spines, the posterior angles armed with short stout obtuse spines; anterior wings having one elongate marginal cell nearly reaching the apex of the wing, and of nearly equal width throughout, truncate at the apex, one marginal cell complete, and one discoidal cell; nodes of the abdomen without spines; abdomen ovate, pointed at the apex.

*Male*.—Length 5 lines. Head and thorax black; on the sides of the head and face a little scattered hoary pubescence, the vertex roughly sculptured longitudinally; the antennæ and mouth rufo-testaceous, the former as long as the entire insect. Thorax above having a few long scattered griseous hairs; the mesothorax has in front a narrow abbreviated smooth oblong space, a similar smooth line is also observable parallel with the tegulæ; the post-scutellum is pale testaceous, wings sub-hyaline, the nervures thick and of a pale testaceous colour, the marginal cell is occupied by a fuscous cloud. Legs pale rufo-testaceous; the nodes of the abdomen fuscous as well as the sides of the following segment, the rest of the abdomen ferruginous.

Hab. Brazil (Santarem). Mr. H. W. Bates.

The male and female in the British Museum, the latter also in my own Collection.

The male and female were captured by Mr. Bates, who says:—“This species I always find wandering about the trunks of large trees, not in numerous bands, following in regular order, but only a few scattered individuals, apparently wandering each on his own account in pursuit of prey. When observed, they are seen to carry their mandibles wide open at right angles to the axis of their bodies; and when a stalk of grass or any other article is presented at their heads, they close their jaws with a sudden snap. I do not know where or how they construct their nests. I have never seen it occupied in any regular industry, or associated in great numbers like *Ecodoma cephalotes*, to which it appears to be allied.”

#### Genus 4. ORECTOGNATHUS, new gen.

Head heart-shaped; eyes prominent, placed forwards on the sides of the head; mandibles elongate, projecting forwards in a line with the body; antennæ elongate, inserted near the base of the mandibles, 5-jointed in the worker. Thorax narrow, a little longer than the head; abdomen attached to the thorax by two narrow elongate ovate nodes.

Sp. 1. *Orectognathus antennatus*. (Pl. XXI. fig. 9.)

*Neuter*.—Pale rufo-testaceous, the mandibles armed at their extremity with two long spines or teeth, the upper one simple, the lower one forked at the apex; the anterior angles of the thorax have a short acute spine, a second short one is situated about the middle at the sides, and the metathorax is armed with two longer slender acute spines; legs elongate, very pale testaceous. Abdomen nearly rotundate, slightly flattened, the first node elongate-clavate, the second globose.

Hab. New Zealand.

In the Collection of the British Museum.

## EXPLANATION OF PLATES.

## PLATE XIX.

- Fig. 1. *Cryptocerus atratus* ♀; 1 a, labium of do.; 1 b, maxilla of do.; 1 c, labrum of do.; 1 d, mandible of do.; 1 e, labium of do. (neuter); 1 f, maxilla of do. (neuter).  
 2. *atratus* (neuter).  
 3. *elegans*; 3 a, antenna of do.  
 4. *Araneolus*.  
 5. *D'Orhignyanus*.  
 6. *Cataulacus parallelus*; 6 a, front view of the head of do.  
 7. *Cryptocerus argentatus*; 7 a, antenna of do.  
 8. *quadrimaculatus*.  
 9. *unimaculatus*.

## PLATE XX.

- Fig. 1. *Cryptocerus dubitatus*.  
 2. *discocephalus*.  
 3. *femorialis*.  
 4. *pubescens*; 4 a, antenna of do.  
 5. *Cataulacus Guineensis*; 5 a, underside of the head, showing the grooves for the reception of the antennæ.  
 6. *Meranoplus bicolor*; 6 a, antenna of do.  
 7. *petiolatus*; 7 a, antenna of do.  
 8. *Cryptocerus pusillus*; 8 a, antenna of do.  
 9. *Æthiops*.  
 10. *Cataulacus Taprobunæ*.

## PLATE XXI.

- Fig. 1. *Cryptocerus clypeatus*, ♀.  
 2. do. do. ♂.  
 3. *cordatus*.  
 4. *membranaceus*.  
 5. Head of *C. clypeatus* (neuter).  
 6. Thorax of do.  
 7. *Daceton armigerum*, ♂.  
 8. do. do. ♀.  
 9. *Orectognathus antennatus* (neuter); 9 a, mandible of do.; 9 b, antenna of do.; 9 c, metathorax of do.